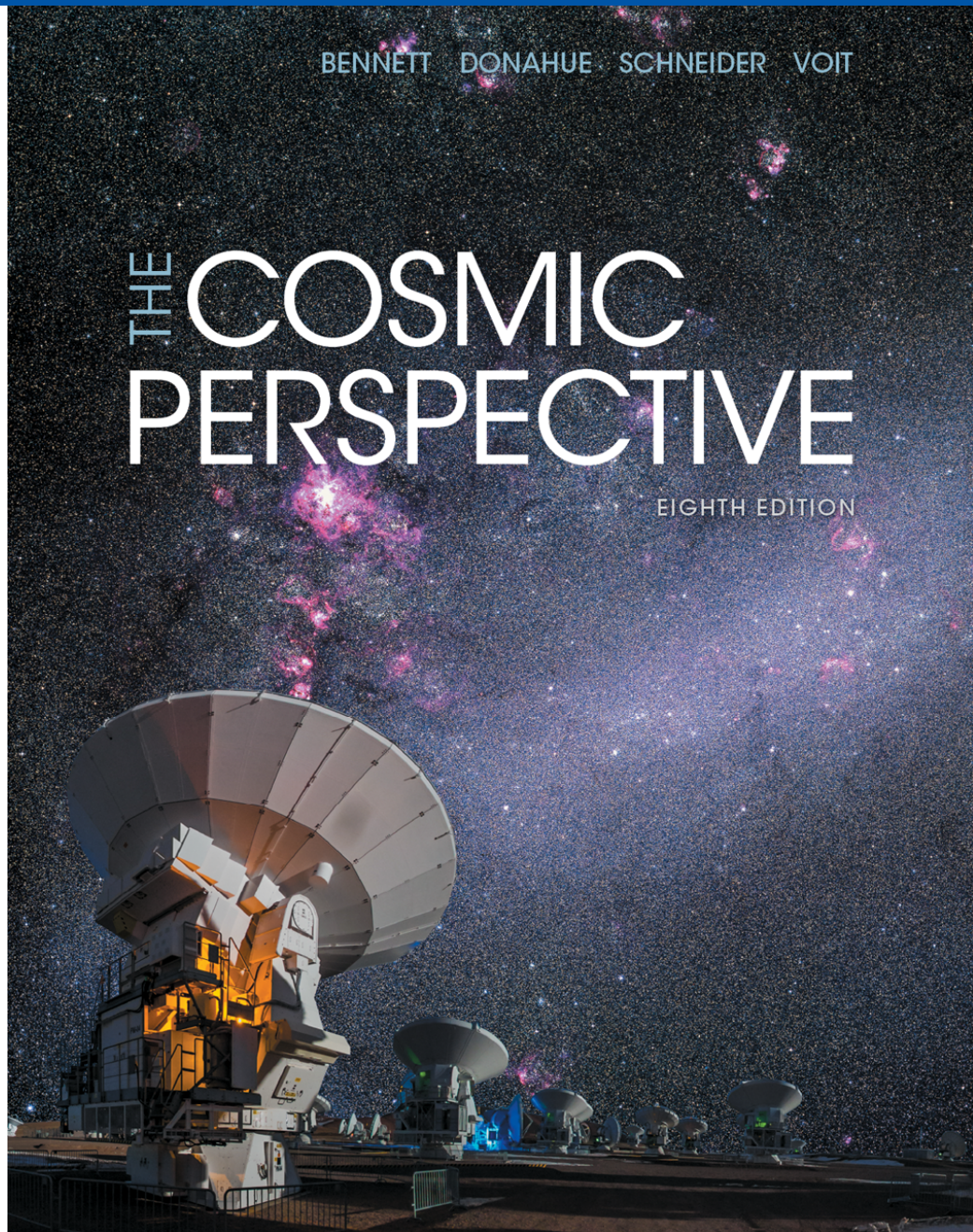
Reading Quiz Clickers

Chapter 11: Jovian Planet Systems



11.1 A Different Kind of Planet

- Are jovian planets all alike?
- What are jovian planets like on the inside?
- What is the weather like on jovian planets?
- Do jovian planets have magnetospheres like Earth's?

How does the composition of Uranus and Neptune compare to the composition of Jupiter and Saturn?

a) Uranus and Neptune have compositions very similar to Jupiter and Saturn.
b) Uranus and Neptune are mostly rocky while Jupiter and Saturn are mostly hydrogen and helium.
c) Uranus and Neptune are mostly hydrogen and helium while Jupiter and Saturn are mostly hydrogen compounds.
d) Uranus and Neptune are mostly hydrogen compounds while Jupiter and Saturn are mostly hydrogen and helium.
e) Uranus and Neptune are mostly hydrogen compounds while Jupiter and Saturn are mostly rocky.

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How are the jovian planets affected by their rotation?

a) Their rapid rotation causes the lighter elements hydrogen and helium to flung out to their outer layers and denser hydrogen compounds to settle in their cores.
b) Their rapid rotation causes the planets to be slightly flattened, larger across the equator than pole-to-pole.
c) Their rapid rotation causes a build up of hydrogen and helium near the equator and hydrogen compounds near the cores.
d) Their rapid rotation causes the planets to by stretched, larger pole-to-pole than across the equator.
e) none of the above

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The core of Jupiter is

a) about the same size as Earth.
b) is about the same mass as Earth.
c) is about the same composition as Earth.
d) A and B
e) all of the above

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The interior of which jovian planet is heated by differentiation in the form of helium rain?

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b) Saturn
c) Uranus
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Why are methane clouds not seen on Jupiter and Saturn?

a) Jupiter and Saturn do not have enough methane to make clouds.
b) The atmospheres of Jupiter and Saturn are too warm for methane clouds to form.
c) Because of their relatively warmer temperatures, Jupiter and Saturn have clouds of water that obscure our view of their methane clouds.
d) Jupiter and Saturn have sulfur compounds that combine with all their methane to make reddish methane-sulfide clouds.
e) Methane clouds *are* seen on Jupiter and Saturn.

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What causes the white bands we see on Jupiter?

a) formation of ammonia clouds in regions of rising air
b) formation of water clouds in regions of rising air
c) gaps in ammonium hydrosulfide clouds revealing ammonia clouds below
d) gaps in ammonium hydrosulfide clouds revealing water clouds below
e) snow on mountain peaks

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Which of the jovian planets has no seasons?

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b) Saturn
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e) none of the above (all have seasons)

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b) in an ocean of hydrogen and helium
c) in an ocean of hydrogen compounds, rocks, and metals
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11.2 A Wealth of Worlds: Satellites of Ice and Rock

- What kinds of moons orbit the jovian planets?
- Why are Jupiter's Galilean moons so geologically active?
- What geological activity do we see on Titan and other distant moons?
- Why are small icy moons more geologically active than small rocky planets?

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Io, Europa, and Ganymede have tidal heating because

a) an orbital resonance keeps their orbits elliptical.
b) they are the closest moons to Jupiter.
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Why are some small jovian planet moons geologically active?

a) They have large amounts of radioactive material.
b) Impact cratering melted the interior.
c) Ice is able to deform at lower temperatures than rock.
d) all of the above

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11.3 Jovian Planet Rings

- What are Saturn's rings like?
- How do other jovian ring systems compare to Saturn's?
- Why do the jovian planets have rings?

What causes waves in Saturn's rings?

a) orbital resonances from nearby moons
b) variations in the composition of the ring particles
c) impacts into the rings
d) eruptions from nearby moons
e) impacts from charged particles in the magnetosphere

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Which of the following is not a similarity between all jovian planet ring systems?

a) They are all on nearly circular orbits.
b) They are all on nearly equatorial orbits.
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d) They are all made of bright icy particles.

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Why don't ring particles form a moon?

a) They collide too violently to accrete into a moon.
b) Tidal forces from moons prevent them from accreting.
c) Tidal forces from the planet prevent them from accreting.
d) Their masses are too small for them to accrete.
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